

IN THE SPECIFICATION:

On page 1, please amend lines 2-21 to read as follows:

The invention relates to an ~~operating~~ position selector device to create electronic signals representing selector positions.

~~An operating~~ A selector device to create selector positions is known from International Patent Publication No. WO 98 26 341 A1, and its corresponding U.S. Patent No. 6,380,733. So that the selector positions may be created easily whose final positions may be securely used largely free of mechanical wear, a ~~position~~ rotary sensor unit is provided that is free to move about its longitudinal axis and thus to position its position sensor teeth opposite teeth of a first position selector unit and to determine these positions by means of ~~position elements~~ via first position sensor elements that are positioned along the longitudinal axis in a finger body that may be pushed into a recess. For this, a second rotating body is placed upon a second position selector unit, and its position is determined via a second position ~~determination~~ sensor

element. A The second position selector unit is positioned opposite a base body via a two-dimensional positioning device. These positions are determined by third position determination sensor elements.

On page 2, please amend lines 6-11 to read as follows:  
(lines 10 and 11 which were previously amended pursuant to applicant's Preliminary Amendment dated August 28, 2001) to read as follows:

~~The objective is therefore to develop parts and the operating device further so that the operation and the final positions may be assumed more conveniently.~~

~~According to the invention, this task is solved by the properties of claim 1 or 2 or 3 or 4.~~

This objective, as well as further objects which will become apparent from the discussion that follows, are achieved, in accordance with the present invention by providing a position selector device having:

- (a) an inverted cup-like base body with an upper portion and a side portion;
- (b) a substantially cylindrical rotary member mounted on a shaft, and arranged to rotate within the base body;
- (c) a first position sensor for sensing the angular position of the rotary member;
- (d) a toothed ring arranged to provide raster movement of the rotary member;
- (e) a disk disposed centrally within the upper portion of the base body and arranged for tilting and/or lateral displacement within the base body;
- (f) a second position sensor for sensing the tilting and/or lateral displacement; and
- (g) a magnet arrangement for restoring said disk to its central position in said base body after its tilting and/or lateral displacement movement.

On page 2, please amend lines 13-16 to read as follows:

The advantages achieved by the invention consist particularly of the fact that the disk body is located in

the engaging area of the user's fingers, thus allowing easy operation.

On page 2, please amend lines 18-24 to page 3, lines 1-10, to read as follows:

Based on this, a magnetic tilt switch or slide switch may be produced that may be used to adjust a mirror or similar device in a motor vehicle. If necessary, this switch may be implemented with or without position assignment. The tilt switch device may also be a part of a tilt and raster switch device, or part of a tilt, raster, and tip switch device. The selector positions of the rotor hollow body are thereby accepted without making a sound. In order to provide the sounds that the user has come to expect, switching sound spheres are incorporated into the switching sound grooves of the a switching sound ring magnet. By the use of a repelling magnet element, the tilt magnet element allows switching movements that may be influenced by magnetic characteristic force curves. The tilt, push, raster, and/or tip positions are determined by the position arrangement, and the signals

generated by the device may be used for regulators, controllers, switching, displays or similar apparatus.

On page 3, please amend lines 16-17 to read as follows:

The disk body may be either tilted or displaced above the motion element opposite the rotor hollow body.

On page 5, please amend lines 6-18 to read as follows:

The position arrangement sensor element may consist of a light sensor. It may consist of an arrangement of magnets that may be moved opposite a display Hall switch sensor. Depending on the identification of individual positions, the arrangement of magnets may be formed of at least one display displacement magnet element, or a ring magnet with corresponding polarization, ~~or similar~~. Displacement display switches, tilt switches, and/or rotation display switches may ~~be used as display~~ all use Hall switches sensors. Double switches that are assigned to the magnet elements might find additional use as position arrangements sensors. Double Hall ~~switches sensors~~ may also be used as rotation display

~~switches~~ sensors. This makes it possible to determine the direction of rotation.

On page 7, please amend lines 14-24 to page 8, lines 1-3, to read as follows:

The individual parts of the switch position selector device, such as the tilt magnet element, counter-magnet element, steel plate element, damping supports, etc. may be arranged within a tilt switch housing body. This tilt switch housing body may be pressed into a tilt switch receiver recess of the stator body elements. Simultaneously, the shaft element may be continued as a pushrod element that transfers the tilt motions issuing from the shaft element to the tilt magnet element. The tilt switch device may be produced at another location, and needs only to be finally inserted into the stator body element. This would greatly reduce manufacturing costs. If defects appear in the tilt switch device, it may be extracted and repaired or replaced by a new unit.

On page 8, please amend lines 17-18 and 22-23 to read as follows:

Fig. 2 shows a tilt, raster and/or tip switch device in a schematic cutaway view.

~~Fig.~~ Figs. 3 b and 3 c show additional embodiments of a position selector arrangement as in Fig. 3 a.

On page 9, please amend lines 4-8 to read as follows:

Figs. 5 a through 7 a show various embodiments of raster position configurations as in Fig. 4 with corresponding double Hall ~~switches~~ sensors as further position ~~display~~ arrangements sensors with pertinent ~~switching~~ characteristic curves as in Fig. 5 b through 7 b.

On page 11, please amend lines 11-24, and page 12, lines 1-11, to read as follows:

A position arrangement sensor 7 is provided to determine the tilt positions here between the disk body and the final

plate element. At least one ~~display~~ permanent magnet 7.1 is located on the underside of the disk body 3. This magnet may consist of a large number of individual magnets or of a ring magnet with north and south poles. A ~~display~~ sensor plate 7.2, implemented as a circuit board, is inserted into the element 8.1 on which the ~~display switches~~ sensor elements 7.3 are mounted. Simple or double Hall ~~switches~~ sensors may be used as a ~~display switch~~ sensor element 7.3.

Fig. 1 b shows a displacement switch device 1'. It has the same design as the tilt switch device as in Fig. 1 a. So that the disk body 3 may be displaced laterally, a motion element 5 may be realized using spheres that are in corresponding recesses. Also, the disk body 3 includes an at least partially surrounding disk body recess 23 into which an at least partially surrounding displacement wall 11 engages, depending on displacement movement. The previously described position ~~arrangement~~ sensor 7 is used to engage determine the displacement positions. The described tilt- or displacement switch device may be used individually for the adjustment of mirrors or similar ~~from~~ devices within a motor vehicle. Since it functions according to magnetic



principles, practically no wear occurs. In the embodiment ~~example~~ shown, the tilt switch device 1 is part of the overall switching device.

On page 14, please amend lines 15-24 to page 15, lines 1-5, to read as follows:

A position ~~arrangement~~ sensor designated with 7 is also positioned between the rotor hollow body 8 and the stator body element 14. This replaces the one described in Fig. 1a, but may also be augmented by it. A ring magnet 7.1', 7.2' with north and south poles N, S is ~~hung on~~ attached to it. The ~~display switches~~ position sensors 7.3 are positioned on the element 14 (see also Fig. 3 a). As Fig. 3 b shows, the ~~display switches~~ position sensors may be replaced by displacement ~~display switches~~ sensors 7.3' that also indicate the tilt positions as a tip ~~display switch~~ sensor 7.3'' and/or as a rotation ~~display switch~~ sensor 7.3'''. As Fig. 3 c shows, the ~~switches~~ sensors 7.3''' are realized as double Hall ~~switches~~ sensors, and are positioned ~~separate~~ separately but adjacent to one another in a disk-shaped circuit board 48. This allows, among other things, the

detection of rotation direction, particularly of the rotor hollow body 8.

On page 15, please amend lines 14-23 to read as follows:

In Fig. 7 a, a double Hall switch sensor 43 is assigned to at least one magnet ~~element 12.1~~ element 12.1, ~~...~~ etc.

Thus, positions may also be determined so that this arrangement may be used either as a primary position arrangement sensor 7 or as an additional position arrangement sensor.

Fig. 5 a shows an alternative embodiment ~~that~~ with a Hall sensor 43, as in Fig 7 a, in which a stator and a rotor ring magnet 44, 45 47 with north and south poles N, S oppose each other, ~~to which the double Hall switch 43 is assigned.~~

On page 16, please amend lines 13-16 to read as follows:

The tip switch device 30 is shown in detail in Fig. 2 and in Fig. 8 through 14. It consists of a tilt switch housing body 38. A counter-magnet element 37 is in the floor of the tip switch housing hollow body.

On page 16, please amend lines 18-24 to page 17, lines 1-5, to read as follows:

The opposing open side of the tip switch housing hollow body 38 is closed with a steel plate element 32 that is shown in detail in Fig. 9 and 10. It has an essentially circular configuration. Three recesses 33 in the form of elongated holes are made in the steel plate element 32. As Fig. 10 shows, the steel plate element 32 is equipped on both sides with damping bodies 35 and 35' made of rubber or elastic resilient plastic. In the center of the steel plate element 32 is a pushrod recess 34. As Fig. 8 particularly shows, a moveable tilt magnet element 36 with its north pole N is opposite the north pole of the counter-magnet element 37, creating a repelling magnetic effect.

On page 17, please amend lines 12-22 to read as follows:

As Figs. 12 and 13 show, half of the magnets 32 and 36 have a north pole N, and half have a south pole S. this increases the magnetic repelling force 39. This may be increased even further if, as Fig. 11 b shows, the magnet 36 is surrounded by a U-shaped iron yoke 66. The north pole N of the magnet 36 rests on the pushrod element 31 and opposite the magnetic south pole S. This produces a situation in which the steel plate element has a north pole N and the U-shank of the iron yoke has a south pole S, and a magnetic short-circuit with a high attracting force of attraction is present.

On page 18, please amend lines 17-24 to page 19, lines 1-8, to read as follows:

The housing body 2 is gripped with the user's fingers and rotated. The position sensor teeth thus assume a final position with respect to the magnet elements 11, 12 that may be in the form of permanent magnets. When the housing body is rotated, position movements occur as are known in

mechanical raster mechanisms. Since the raster positions are based on a magnetic principle, they are without sound. In order to give the user the feel of a raster switch, switching-sound spheres are inserted into the switching-sound grooves 18.1 for each raster position, thus producing the expected switching sound. The sound quality of the switching-sound may be varied by the size of the switching-sound spheres and by their configuration as full or hollow spheres. Also, certain raster positions may be especially preferred. An intermediary body 41 (see Fig. 2) ensures that the rotating motion is completed cleanly.

On page 19, please amend lines 20-23 to read as follows:

When the desired station is found by rotating the housing dimming body 8, an additional press on the disk body 3 of the rotor hollow body<sub>1</sub> and thereby via the shaft element 9<sub>1</sub> actuates the pushrod element 31.

On page 20, please amend lines 8-22 to read as follows:

Fig. 16 shows a characteristic motion curve KL of a force K as a function of the path W that is created during phases 1 to 3 as shown in Fig. 15. In Phase 1, a curved curve increase KLA that may be similar to a sine wave occurs and leads to a curve maximum KLM. To this is ~~attached~~ appended a curved curve decrease KLS in Phase 2 that may be cotangent-shaped, and that attempts to swing upward in a curve as repelling magnet characteristic curve KG. The characteristic line KL ends in a strike window AF. A tolerance window TF is established at its maximum KLM that is a switching point KS, and that is assigned to one or more ~~display switches of the~~ position sensors 7.3. The position ~~display sensor~~ 7 as in Fig. 2 receives not only these, but also all tilt and rotation positions.

~~They~~ The positions are passed on as ~~acknowledgment~~ electronic signals.

On page 21, please amend lines 19-24, to page 22, lines 1-12, to read as follows:

When this selection is completed, another ~~basic program~~ menu may be selected by another position of the disk body 3 whose ~~address~~ program may be specially invoked. If the invoked program is a telephone book, telephone numbers are ~~invoked~~ provided with the individual addresses that appear on the screen. The ~~invoked~~ displayed addresses may also be linked to audio announcements with the name and telephone number. When the ~~driver~~ motor vehicle operator has found the correct number, this fact is acknowledged by means of the tip movement via the tilt switch device, and the party is called.

The particular advantage of the tilt, raster and tip switch device consists of the fact that the ~~automobile driver~~ motor vehicle operator may invoke all types of programs using one hand, particularly allowing safe telephoning while driving. The switching position selector device may be integrated into the steering wheel so that the driver may keep both hands on the wheel while operating the raster, tilt switch. This increases automotive safety.